

What is claimed is:

1. A high pressure tank comprising:

a metal hollow liner for storing a gas at high pressure;

5 and

a fiber reinforced plastic layer which covers an outer surface of said liner;

said liner including a liner body having an opening portion and a lid to be connected to said liner body in such a way as to close said opening portion; and

said liner body and said lid having contact surfaces facing each other around said opening portion, with a seal member provided between the two contact surfaces and extending around said opening portion;

15 wherein portions of said contact surfaces that come into contact with said seal member serve as seal surfaces, and

one of said liner body and said lid have a deformable portion which is deformable by pressure in said liner in such a way as to direct one of said seal surfaces toward the other seal surface.

2. The high pressure tank according to claim 1, wherein said deformable portion has one of said seal surfaces.

25 3. The high pressure tank according to claim 2, wherein said liner body is cylindrical and has said opening portion in at least one axial-directional end thereof, said both seal surfaces extend in an axial direction of said liner body and said deformable portion is deformable in a radial direction of said liner body by pressure in said liner.

35 4. The high pressure tank according to claim 3, wherein said deformable portion has said seal surface at an outward portion with respect to said radial direction of said liner body, and said deformable portion includes a thin portion

which is stretchable by pressure in said liner and which is positioned more inwardly than said seal surface with respect to said radial direction of said liner body.

5 5. The high pressure tank according to claim 2, wherein said liner body is cylindrical and has said opening portion in at least one axial-directional end thereof, said both seal surfaces extend in a radial direction of said liner body and said deformable portion is deformable in an axial direction of
10 said liner body by pressure in said liner.

 6. The high pressure tank according to claim 5, wherein said deformable portion has said seal surface at an outward portion with respect to said axial direction of said liner
15 body, and said deformable portion includes a thin portion which is stretchable by pressure in said liner and which is positioned more inwardly than said seal surface with respect to said axial direction of said liner body.

20 7. The high pressure tank according to claim 1, wherein said deformable portion is formed by lightening a part of an inner surface of said liner body or said lid.

 8. The high pressure tank according to claim 1, wherein
25 said deformable portion includes a bendable portion which is bendable by pressure in said liner and which is formed by forming a retaining groove for retaining said seal member in said deformable portion.

30 9. The high pressure tank according to claim 1, wherein said liner body is cylindrical, said opening portion is one of two opening portions respectively formed in both axial-directional ends of said liner body and said lid is one of two lids respectively corresponding to said opening portions.

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10. The high pressure tank according to claim 9, wherein a gas absorption unit is retained in said liner.

11. The high pressure tank according to claim 10,
5 wherein said liner body has a projection on an inner surface of at least one axial-directional end of said liner body and said projection supports said gas absorption unit inside said liner.

10 12. The high pressure tank according to claim 1, wherein a gas absorption unit is retained in said liner.

13. A high pressure tank comprising:
a hollow liner for storing a gas at high pressure gas and
15 in which an assembly is retained; and

a fiber reinforced plastic layer which covers an outer surface of said liner;

said liner including a cylindrical liner body having an opening portion in at least one axial-directional end thereof,
20 and a lid to be connected to said liner body in such a way as to close said opening portion,

said assembly being inserted into said liner body via said opening portion,

said lid having a protruding portion to be fitted into
25 said opening portion and a flange larger in diameter than said protruding portion, with a seal member provided between a peripheral surface of said protruding portion and that portion of said liner body which faces said peripheral surface,

said liner body having an annular recess portion which
30 surrounds said opening portion at a location corresponding to said opening portion, with an annular reinforcing portion provided in said recess portion to prevent enlarging of said opening portion.

35 14. The high pressure tank according to claim 13,

wherein said annular recess portion is open at least outward in a radial direction of said liner body and said reinforcing portion is made of fiber reinforced plastic including a bundle of fibers wound annularly.

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15. The high pressure tank according to claim 13, wherein said annular recess portion is open at least in an axial direction of said liner body and said reinforcing portion is fitted in said annular recess portion from the axial direction of said liner body.

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16. The high pressure tank according to claim 13, wherein said liner body is made of aluminum or an aluminum alloy and said reinforcing portion is made of stainless steel.

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17. The high pressure tank according to claim 13, wherein said reinforcing portion is made of fiber reinforced plastic including a bundle of fibers stronger than a bundle of fibers of said fiber reinforced plastic layer which covers said outer surface of said liner.

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18. A method of manufacturing a high pressure tank having a hollow liner which retains an assembly having a heat exchanging capability and a fiber reinforced plastic layer which covers an outer surface of said liner, said liner including a cylindrical liner body having an opening portion in at least one axial-directional end thereof and a lid that closes said opening portion, said method comprising:

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a step of inserting said assembly into said liner body via said opening portion;

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a step of fitting a protruding portion provided on said lid into said opening portion, with a seal member disposed between a peripheral surface of said protruding portion and a portion of said liner body which faces said peripheral

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surface;

a first winding step of winding a bundle of resin-impregnated fibers into an annular recess portion formed in a portion of an outer surface of said liner body which corresponds to said opening portion; and

- 5 a second winding step of winding a bundle of resin-impregnated fibers on said outer surface of said liner by filament winding after said first winding step, whereby as a resin is cured, said fiber reinforced plastic layer is formed on said outer surface of said liner.